

A NEW SPECIES OF THE GENUS *SIMULIUM* (NEVERMANNIA) FROM NINGXIA, CHINA (DIPTERA, SIMULIIDAE)

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Abstract A new species, *Simulium* (*Nevermannia*) *ningxiaum* sp. nov., collected from the Ningxia Hui Autonomous Region, China, is described. It seems to fall into the *nufiarne* group of the *Simulium* (*Nevermannia*).

Key words Simuliidae, *Simulium* (*Nevermannia*), *nufiarne* group, new species.

The Simuliid fauna of Ningxia Hui Autonomous Region has been poorly studied with only two species listed by An *et al.* (2000) and Chen *et al.* (2003). In this paper, the authors report another new species, *Simulium* (*Nevermannia*) *ningxiaum* sp. nov. The type specimens are kept in Guiyang Medical College, Guizhou, China.

Simulium (*Nevermannia*) *ningxiaum* sp. nov.
(Figs. 1–11)

Female. Body length 2.7–2.9 mm.

Head. Slightly narrower than thorax. Frons and clypeus black with silvery-grey dusting and covered with several dark hairs. Frontal ratio 6.0: 3.8: 6.4; frons-head ratio 6.0: 24.0. Antenna composed of 2 + 9 segments, brownish except scape pale. Maxillary palp composed of 5 segments, proportional lengths of 3rd to 5th segments 5.1: 4.8: 9.3; 3rd segment moderately swollen; sensory vesicle elliptical, about 0.4 of the length of respective segment. Maxilla with 9 inner teeth and 13 outer ones. Cibarium unarmed.

Thorax. Scutum brownish black, covered densely with golden yellow pubescence as well as sparse erect black hairs on prescutellar area. Scutellum light brown, grey pruinose, with sparse yellow pubescence and several erect dark hairs. Postscutellum brown and bare. Pleural membrane and katepisternum bare. Legs. All coxae and trochanters yellow except mid and hind coxae dark brown. All femora yellow with apical 1/4 brown. All tibiae brown except large portions of out surface which are pale yellow. All tarsi dark except basal 4/5 of hind basitarsus and basal 1/2 of second tarsomere pale. Fore basitarsus slender, cylindrical, about 8.0 times as long as its greatest width. Hind basitarsus parallel-sided. Calcipala and pedisulcus well developed. Each claw with large basal tooth. Wing. Costa with 2 rows of spines as well as hairs. Subcosta hairy. Basal portion of radius fully haired. Hair tuft at stem vein brown.

Abdomen. Basal scale light brown with fringe of

yellow hairs. Terga dark brown except 2nd tergum pale. Genitalia. Stemite 8 bare medially, furnished with about 40 stout hairs on each side. Anterior gonapophyses membranous, subtriangular, with some short macrosetae, inner margins somewhat thickened and separated from each other, posteromedian corner rounded. Genital fork with well sclerotized stem, each arm lacking any prominent projection directed forward. Spermatheca spherical and unpatterned.

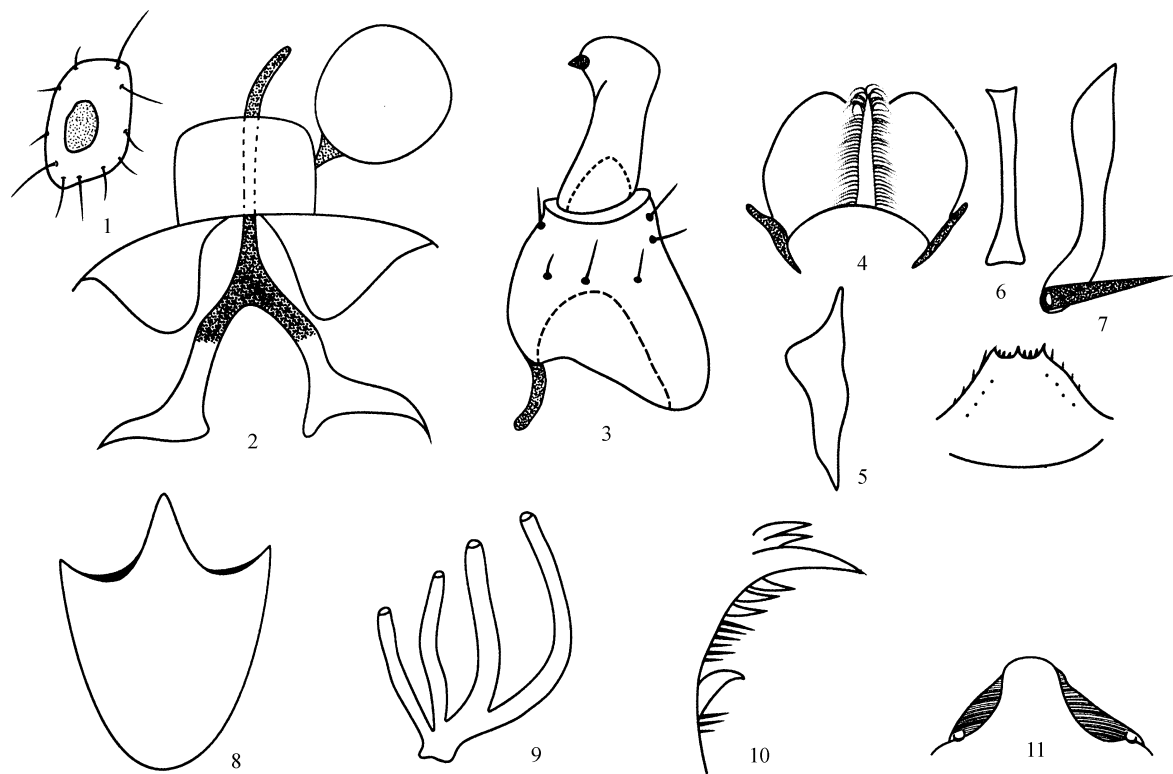
Male. Body length about 3.0 mm.

Head. Width slightly wider than thorax. Clypeus black with silvery-grey pruinosity and covered sparsely with black hairs. Upper eye consisting of large facets in 19 horizontal and 18 vertical rows. Antenna composed of 2 + 9 segments. 1st flagellomere about 2.0 times as long as the following one. Maxillary palp same nearly as in female, but the sensory vesicle smaller about 0.17 times length of 3rd segment.

Thorax. Scutum brownish black, uniformly covered with golden yellow recumbent pubescences and with several black hairs on prescutellar area. Legs. Nearly the same as in female except all coxae and trochanters brownish black and hind basitarsus somewhat swollen, about 4.5 times as long as its greatest breadth. Wing. As in female.

Abdomen. Nearly as in female. Genitalia. Coxite nearly rectangular in ventral view, about 1.2 times as long as wide. Style boot shaped, about 0.9 times as long as coxite, with apical spine. Ventral plate lamellate, butterfly shaped, plate body shorter than wide, with haired median keel, and lateral margins each having a sclerotized basal process; basal arms much shorter than plate body, well sclerotized and bent inwards. Each paramere with a large hook. Median sclerite slender, rod-shaped.

Pupa. Length about 3.0 mm. Head and thorax. Integument pale yellow, sparsely covered with tubercles. Head with 1 facial and 3 frontal pairs of simple trichomes; whereas the thorax with 5 pairs of simple,



Figs 1-11. *Simulium* (*Nevemanna*) *ningxiaum* sp. nov. 1. Female 3rd segment of maxillary palp and sensory vesicle. 2. Female genitalia. 3. Coxite and style. 4. Ventral plate in ventral view. 5. Ventral plate in lateral view. 6. Median sclerite. 7. Paramere. 8. Cocoon. 9. Pupal filaments. 10. Larval mandible. 11. Larval head capsule in ventral view.

long trichomes. Gill organ with 4 filaments arranged in pairs, extending forwards and tapered towards tip; uppermost and inner middle filaments arising from very short stem, while 2 others almost sessile, all filaments subequal in length but shorter than pupal body. Abdomen. Terga 1 and 2 pale yellow, not tuberculate; tergum 2 with 1 long, slender seta and 5 short, spinous setae on each side. Terga 3 and 4 each with 4 hooked spines directed forwards along posterior margin and pair short setae medially on each side. Terga 5 to 8 each with a transverse row of spine combs and also comb-like groups of minute spines laterated on each side; tergum 9 with comb-like of minute spines in transverse row on each side and also pair of developed terminal hooks. Sternum 5 with pair of bifid hooks situated close together on each side; sterna 6 and 7 each with pair of inner bifid and outer simple hooks widely spaced; sterna 4 to 8 each with comb-like groups of minute spines directed backwards on each side. Cocoon. Wall pocket-shaped, tightly woven, extending ventrolaterally, with strong anterior margin and very long anterodorsal projection.

Mature larva. Body length 5.8 mm to 6.2 mm. Cephalic apotome pale yellow with definite positive head spots. Antenna longer than stem of cephalic fan, composed of 4 segments in proportion of 5.5: 6.0: 4.8: 0.2. Cephalic fan each with 26 to 28 main rays. Mandible with a few very minute supernumerary

serrations. Hypostomium with a row of 9 apical teeth, of which corner and median teeth prominent; lateral serrations developed on apical 1/2; 4 or 5 hypostomial setae lying parallel to lateral margin on each side. Postgenal cleft small, somewhat quadrate and about 1/3 to 1/2 as long as postgenal bridge. Thoracic and abdominal integument bare. Rectal papilla of 3 lobes, all simple. Anal sclerite X-formed, anterior arms about 0.7 times as long as posterior ones. Posterior arms about 66 to 68 rows of up to 16 hooklets per row. Ventral papillae well developed.

Holotype ♀, reared from pupa, collected from a small stream at Donggou, Liupanshan, Jingyuan City (35°28'N, 106°19'E, alt. 2942 m), 20 July 2006, by WANG Yan and FAN Wei, Ningxia Hui Autonomous Region, China. Paratypes: 3 ♀♀, 2 ♂♂, reared from pupae, 7 pupae and 5 larvae, all slide mounted, same data as holotype.

Distribution. Ningxia Hui Autonomous Region, China.

Remarks. According to the ventral plate in the male with haired median keel, this new species seems to fall into the *ruficornis* group of *Simulium* (*Nevemanna*), as defined by Crosskey (1967). The present species is characterized by the having a few minute supernumerary serrations on the larval mandible and this differs from all the known species of *ruficornis* group.

In this group, the present new species is distinctive in having very long anterodorsal projection on the pupal cocoon; this character is shared by several known species of the *nificorne* group, such as *S. (N.) lundstromi* Enderlein, 1921, *S. (N.) latigoria* Rubtsov, 1956, *S. (N.) gomphocornis* Rubtsov, 1964 and *S. (N.) crassicaulis* Rubtsov, 1955. The new species, however, is easily distinguished from all related species mentioned above by combination of several character, including the shape of the male genitalia, the genital fork lacking any prominent projection directed forward in the female and the rectal papilla lobes all simple in the larva.

Etymology. The specific name refers to the type locality.

宁夏回族自治区纺蚋亚属鹿蚋组一新种记述 (双翅目, 蚋科)

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摘 要 记述蚋属 *Simulium* 纺蚋亚属 *Nevemannia* 鹿蚋组 *nificorne* group 1 新种, 该组的鉴别特征是雄性生殖腹板具中龙骨突, 此乃该组首次以我国为模式产地的新种, 标本采自宁

关键词 蚋科, 蚋属, 纺蚋亚属, 鹿蚋组, 新种.

中图分类号 Q969.442.9

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夏回族自治区, 以模式产地命名。其主要特征是幼虫上颚具附点, 蛹茧具长背中突, 雄虫生殖腹板蝶形, 据上述综合特征可与该组已知其它近缘种相区别。